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09/833,397	04/11/2001	Hajime Kimura	07977/273001/US4846	3430

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SCOTT C. HARRIS
Fish & Richardson, P.C.
Suite 500
4350 La Jolla Village Drive
San Diego, CA 92122

EXAMINER	
ZEADE, BERTRAND	
ART UNIT	PAPER NUMBER
2875	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/833,397	Applicant(s) KIMURA ET AL.	
	Examiner Bertrand Zeade	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the corr spondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21,23-29,31 and 32* is/are rejected.

7)☒ Claim(s) *22 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 U.S.C. § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-7, 9-14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sendova (U.S.6,132,053) in view of Fukiharu (U.S.6,435,687).

Sendova ('053) discloses an optimized high efficient large area modular flat panel display lighting device having:

Regarding claim 1, a light guiding plate (300) having a first side surface and a second side surface (see fig. 1); a light source adjacent to an intersection of the first side surface and the second side surface; and a reflecting member (28) for reflecting a light of the point light source (21), wherein the reflected by the reflecting member (28) is incident on at least the first side surface and second side surface of the guiding plate (300).

Regarding claim 3, a prism having a triangular cross-section is provided on upper surface or a lower surface of the light guiding plate (see abstract).

Regarding claim 4, a projection having a rectangular cross-section is provided on an upper surface or the lower surface of the light guiding plate (see 1, 8-9).

Regarding claim 5, a reflecting plate is provided below the light guiding plate (see fig. 1).

Regarding claim 6, a light guiding plate (901-904) having a first side surface and a second side surface perpendicular to the second surface; and a source (21) adjacent to an intersection of the first side surface and the second side surface (see figs. 3, 9), wherein a light emitted from the point light source (21) is incident on the first side surface and the second side surface of the light guiding plate (see figs. 16).

Regarding claim 7, the point light source (21) is surrounded by a reflecting member (26), the first side surface, and the second side surface (see fig. 1).

Regarding claim 9, prism having a triangular cross-section is provided on upper surface or a lower surface of the light guiding plate (see abstract).

Regarding claim 10, a projection having a rectangular cross-section is provided on an upper surface or the lower surface of the light guiding plate (see 1, 8-9).

Regarding claim 11, a reflecting plate (28) is provided below the light guiding plate (see fig.1).

Regarding claim 12, a light guiding plate (300) having a first side surface (28), a second side surface (12), and a third side surface (26); wherein the first side surface is not perpendicular

to the second side surface and the third side surface; and a light source (21) adjacent to the first side surface, wherein a light emitted from the light source (21) is incident on the first side surface of the light guiding plate and exits through an upper surface or a lower surface of the light guiding plate (11), (see figs.1 and 6).

Regarding claim 13, the light source (21) is surrounded with a first reflecting plate and the first side surface (see fig. 1).

Regarding claim 14, a reflecting plate is provided so as to surround side surfaces and a lower surface of the light guiding plate (11), (see fig. 1).

Regarding claim 16, a projection having a rectangular cross-section is provided on an upper surface or the lower surface of the light guiding plate (see 1, 8-9).

Sendova ('053) does not disclose a point light source.

Fukiharu ('687) discloses a reflection illumination device for object to be illuminated having:

Regarding claim 1, 6, 12, a point light source (16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the optimized high efficient large area modular flat panel display lighting device of Sendova ('053) with the point light source disclosed by Fukiharu ('687) for the benefit and advantage to provide a reflection illumination device for an object to be illuminated, which can obtain high quality display by preventing external light reflected by the surface of a light guide from entering the eyes of a user, because there is provided a reflection illumination device

including a light guide place in front of an object to be illuminated, a light source arranged around the light guide, and a reflecting member placed behind the object, and serving to totally reflect light emitted from the light source toward the object are formed and arranged on a surface of the light guide.

4. Claims 17-18, 21, 23-24, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maegawa et al. (U.S.4,954,930) in view of Fukiharu ('687).

Maegawa ('930) discloses illumination light guide having:

Regarding claim 17, a first light guiding plate (4) having a first side surface and a second side surface perpendicular to the first side surface; a second light guiding plate (2a) having a first side surface, an upper surface, and lower surface, the upper surface and the lower surface being perpendicular to the first surface (see figs. 1-5), wherein the second light guiding plate (2a) is separated from the firs light guiding plate (4); and a light source (9), wherein the light emitted from the light source (9) is incident on a first surface of the first light guiding plate (4) and exit through a second side surface of the first light guiding plate (4), and wherein the light exiting through the second side surface of the first light guiding plate (4) is incident on the first side surface of the second light guiding plate (2a), and exit through the upper surface or the lower surface of the second light guiding plate (2a).

Regarding claim 18, the first light guiding plate (4) has a shape of rectangular prism (see fig. 1-5).

Regarding claim 21, a first light guiding plate (4) having a first side surface and a second side surface perpendicular to the first side surface; a second light guiding plate (2a) having a first side surface, an upper surface, and a lower surface, the upper surface and the lower surface being perpendicular to the first surface; and a light source (9), wherein the light emitted from the light source (9) is incident on a first surface of the first light guiding plate (4) and exit through a second side surface of the first light guiding plate (4), and wherein the light exiting through the second side surface of the first light guiding plate is incident on the first side surface of the second light guiding plate (2a), and exit through the upper surface or the lower surface of the second light guiding plate (2a).

Regarding claim 23, a liquid crystal panel or illuminating portion (2a or 2b or 2c) including a first substrate , a second substrate, and interposed therebetween (see figs. 1-5); an illumination apparatus (2a-2d) adjacent to the liquid crystal panel or illuminating portion (2c) for illuminating an image display plane of the liquid crystal panel (see fig. 1-5), the illumination apparatus including: a first light guiding plate (4) having a first side surface and a second side surface perpendicular to the first side surface; a second light guiding plate (2a) having a first side surface, an upper surface, and lower surface, the upper surface and the lower surface being perpendicular to the first surface (see figs. 1-5), wherein the second light guiding plate (2a) is separate from the first light guiding plate (4); and a light source (9), wherein the light emitted from the light source (9) is incident on a first surface of the first light guiding plate (4) and exit through a second side surface of the first light guiding plate (4), and wherein the light exiting

through the second side surface of the first light guiding plate (4) is incident on the first side surface of the second light guiding plate (2a), and exit through the upper surface or the lower surface of the second light guiding plate (2a).

Regarding claim 24, the first light guiding plate (4) has a shape of rectangular prism (see fig. 1-5 and abstract).

Maegawa ('930) does not disclose a point light source.

Fukiharu ('687) discloses a reflection illumination device for object to be illuminated having:

Regarding claims 17, 21, 23, a point light source (16) adjacent to an intersection of the first side surface and the second side surface (see figs. 1-2).

Regarding claim 27, the liquid crystal display or illumination portion (10) device is a transmission type LCD device.

Regarding claim 28, the LCD device or illumination portion (10) is incorporated in one selected from the group consisting of a personal computer, digital camera, a mobile telephone, a video camera, and a car navigation system well known to those skilled in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the illumination light guide of Maegawa ('930) with the point light source disclosed by Fukiharu ('687) for the benefit and advantage to provide a reflection illumination device for an object to be illuminated, which can obtain high quality display by preventing external light reflected by the surface of a light guide from entering the eyes of a user, because there is

provided a reflection illumination device including a light guide place in front of an object to be illuminated, a light source arranged around the light guide, and a reflecting member placed behind the object, and serving to totally reflect light emitted from the light source toward the object are formed and arranged on a surface of the light guide.

5. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshi (U.S.6020944) in view of Fukiharu (U.S.6,435,687).

Regarding claim 29, Hoshi ('944) discloses an illlumination device and LCD apparatus including same having: a liquid crystal panel (15) including a first substrate (12), a second substrate (22), and a LCD (15) interposed therebetween; an illumination apparatus (26) adjacent to the liquid crystal panel (15) for illuminating an image display plane of the liquid crystal panel (15), the illumination apparatus (26) including: a first light guiding plate (21) having a first side surface and a second side surface perpendicular to the first side surface; a second light guiding plate (31) having a first side surface, an upper surface, and lower surface, the upper surface and the lower surface being perpendicular to the first surface (see figs. 1-20); wherein the first light guiding plate (21) has a larger refractive index than the second light guide plate (31); and a light source (26), wherein the light emitted from the light source (26) is incident on a first surface of the first light guiding plate (21) and exit through a second side surface of the first light guiding plate (31), and wherein the light exiting through the second side surface of the first light guiding

plate (21) is incident on the first side surface of the second light guiding plate (31), and exit through the upper surface or the lower surface of the second light guiding plate (2a).

Regarding claim 31, the liquid crystal display device is a transmission type LCD device (see figs. 1-22).

Regarding claim 32, the LCD device is incorporated in one selected from the group consisting of a personal computer, digital camera, a mobile telephone, a video camera, and a car navigation system well known to those skilled in the art.

Hoshi ('944) does not disclose a point light source.

Fukiharu ('687) discloses a reflection illumination device for object to be illuminated having:

Regarding claim 29, a point light source (16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the illlumination device and LCD apparatus including same of Hoshi ('944) with the point light source disclosed by Fukiharu ('687) for the benefit and advantage to provide a reflection illumination device for an object to be illuminated, which can obtain high quality display by preventing external light reflected by the surface of a light guide from entering the eyes of a user, because there is provided a reflection illumination device including a light guide place in front of an object to be illuminated, a light source arranged around the light guide, and a reflecting member placed behind the object, and serving to totally reflect light emitted from the light source toward the object are formed and arranged on a surface of the light guide.

6. Claims 2, 8, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sendova (U.S.6,132,053) in view of Fukiharu (U.S.6,435,687) as applied to claims 1, 6, 12 above, and further in view of Hoshi (U.S.6,020,944). .

Regarding claims 2, 8, 15, Sendova ('053) in view of Fukiharu ('687) disclose the claimed invention except for the ink dot.

Hoshi ('944) discloses an illumination device and LCD apparatus including same having:

Regarding claims 2, 8, 15, an ink dot or pixel (13) is provided on an upper surface or a lower surface of the light guiding plate or light guiding member (21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the optimized high efficient large area modular flat panel display lighting device of Sendova ('053) in view of Fukiharu ('687) with the ink dot disclosed by Hoshi ('944) in order to provide an illumination device having a reflection-type LCD is expected to realize a high resolution display apparatus including a large number of pixels, because of a high aperture ratio allowing a high-density pixel arrangement.

7. Claims 19-20 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maegawa ('930) in view of Fukiharu ('687) as applied to claims 17 and 23 above, and further in view of Hoshi ('944).

Regarding claim 19, ink dots or pixel (13) are provided on a side surface opposite to the first side surface of the first light guiding plate or liguiding member (21)

Regarding claim 20, ink dots or pixel (13) are provided at a lower density as closer towards the light source (26).

Regarding claim 25, ink dots or pixel (13) are provided on a side surface opposite to the first side surface of the first light guiding plate or liguiding member (21).

Regarding claim 26, ink dots or pixel (13) are provided at a lower density as closer towards the light source (26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the Maegawa ('930) in view of Fukiharu ('687) with the ink dot disclosed by Hoshi ('944) in order to provide an illumination device having a reflection-type LCD is expected to realize a high resolution display apparatus including a large number of pixels, because of a high aperture ratio allowing a high-density pixel arrangement.

Allowable Subject Matter

8. Claims 22 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither disclose nor teach a refractive index of a light guide plate which is between 1.8 and 3.0; 1.4 and 1.6.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bertrand Zeade whose telephone number is 703-308-6084. The examiner can normally be reached on Monday-Friday from 8;00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea, can be reached on (703) 305-4939. The fax phone number for the organization where this application or proceeding is assigned is 703-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Examiner: Bertrand Zeade

March 3, 2003.

Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800